DOCUMENT RESUME

ED 284 876 TM 870 395

TITLE	Evaluation of Chapter 1 Pullout Programs Funded under Chapter 1 of the Education Consolidation and Improvement Act.
INSTITUTION	Detroit Public Schools, MI. Office of Instructional Improvement.
PUB DATE	Feb 86
NOTE	14p.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Attendance Records; Citizenship; *Compensatory Education; Educational Environment; Elementary Secondary Education; *Evaluation Criteria; *Federal Programs; Grade Point Average; Mathematics Education; *Program Evaluation; Reading Programs; *Remedial Programs; Teaching Methods
IDENTIFIERS	*Detroit Public Schools MI; Education Consolidation Improvement Act Chapter 1

ABSTRACT

The purpose of this study was to determine the nature and impact of the Chapter 1 instructional programs in the Detroit school system. The study sought answers to two questions. In what types of settings did the Chapter 1 instruction in reading and mathematics take place? Did the type of setting have a significant bearing upon the academic performance, the attendance, and the citizenship of the target students? The following procedures were employed to ascertain the type of setting in which Chapter 1 instruction took place and also to assess the impact of the instruction upon the target students' academic performance, citizenship, and attendance: (1) principals of elementary schools were requested to designate the types of settings; (2) a random sample of students was selected for each of the instructional settings; (3) data were obtained from school records; (4) a frequency distribution was prepared to depict the numbers and percents of schools using each classification of instructional approach; (5) the number of years of Chapter 1 services received were subjected to a chi-square test; (6) a t-test determined significant differences between the number of absences in grade level, grade point averages, and citizenship; and (7) one-way analyses of variance sought to determine significant differences among samples measured by performance on Detroit's criterion-referenced tests, Assessment of Basic Curriculum Skills. Data indicated that there are no overwhelming statistical differences in favor of any particular approach for providing remedial instruction to Chapter 1 students. (LMO)

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EVALUATION OF

CHAPTER 1 PULLOUT PROGRAMS

Funded Under Chapter 1 of the Education Consolidation and Improvement Act

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Evaluation and Testing Department
Office of Instructional Improvement
Detroit Public Schools

February, 1986

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EVALUATION OF

CHAPTER 1 PULLOUT PROGRAMS

Funded Under Chapter 1 of the Education
Consolidation and Improvement Act

Evaluation and Testing Department
Office of Instructional Improvement
Detroit Public Schools

February, 1986

An Evaluation of Chapter 1 Pullout Programs

Purpose

Although compensatory education programs have been on-going in the Detroit Public Schools for a number of years, definitive information concerning the types of approaches used by schools to provide Chapter 1 instruction has been limited. Since local school administrators were usually free, within guidelines, to administer compensatory education instructional programs according to their preferred methodologies, it was anticipated that a variety of approaches were being used. Likewise, scant information has been available relative to the effects of these various remedial instruction models upon the academic performance of Chapter 1 enrollees as well as upon other related aspects such as attendance and citizenship.

Hence, the purpose of this study was to determine the nature and the impact of Chapter 1 instructional programs in the Detroit school system. The study sought answers to the following questions:

In what types of settings did the Chapter 1 instruction in reading and mathematics take place?

Did the type of setting have a significant bearing upon the academic performance, the attendance, and the citizenship of the target students?

Evaluation Methodology

The following procedures were employed for the purpose of attempting to gain information regarding the instructional settings of Chapter 1 instruction and also to assess the impact of the instruction upon the target students' academic performance, citizenship, and attendance.

1. Principals of Chapter 1 elementary schols were requested to designate the types of settings in which funded instruction in reading and mathematics generally took place in their schools. State guidelines were used to classify this information.

2. A simple random sample of Chapter 1 target students from the school year 1983-84 was selected for each of the instructional settings.

3. School records of students in the samples were examined by Evaluation and Testing Department administrators, assisted by retired Board of Education administrators and teachers.

Data on each of the pupils in the samples for grades 1 through 5 were obtained. These data included:

a. report card marks in reading and mathematics,

b. corresponding citizenship marks,

c. number of absences,

d. number of times each student was selected as an Article 3 and Chapter 1 participant, and

e. CAT and ABCS scores.

4. A frequency distribution was prepared to depict the numbers and percents of schools using each classification of instructional approach for Chapter 1 pupils.

5. The number of years of Chapter 1 and Article 3 services received by the samples were subjected to a chi-square test of independence to determine whether a disproportionate distribution of compensatory education services existed among the various classifications of instructional approaches.

6. For each sample a t-test was carried out to determine whether significant differences existed between the number of absences in grades 1 through 3 and the number of absences in grades 4 and 5. In a similar approach, t-tests were applied to grade point averages and to citizenship.

7. One-way analyses of variance were conducted to determine whether significant differences existed among the samples as measured by their performance on Detroit's criterion-reference tests, Assessment of Basic Curriculum Skills (ABCS).

Discussion of the Data

The principals of all elementary schools which received Chapter 1 funds were surveyed by telephone to ascertain the type of setting in which the Chapter 1 instruction took place. The frequencies and percents of schools using each classification are displayed in Table 1.

Table 1

Frequency Distribution of Types of Setting*

Type of Setting	Reading f	Reading Pct	Mathematics f	Mathematics Pct
1. Regular classroom. 75% Chapter 1 instruction in regular classroom of Chapter 1 participants. Instruction may have a variety of teaching strategies using various materials as well as machines.	31	38%	39	48%
2. Non-machine. 75% Chapter 1 instruction in a location other than regular classroom. Instruction uses variety of teaching strategies and materials other than instructional machines.	19	23	14	17
3. Machine. 75% Chapter 1 instruction in a location other than regular classroom of Chapter 1 participants and instruction used machines primarily or exclusively.	03	04	04	05
4. Regular classroom and nonmachine. Equal amounts of Chapter 1 instruction provided in regular classroom and in a location other than regular classroom of Chapter 1 participants.	12	15	07	09
5. Regular classroom and machine. Equal amounts of Chapter 1 instruction were provided in regular classroom of Chapter 1 participants and in a laboratory setting using machines.	17	21	17	21

*Often a school would use a different instructional setting for reading than for mathematics.

In an effort to determine whether students performed better after receiving remedial instruction in reading in a particular setting, five samples were drawn, one from each of the five groups. Similarly, a sample of students was drawn from each group of schools to represent the five instructional settings for providing remediation in mathematics.

It was felt that the number of Chapter 1 and Article 3 services which were received by the various samples might skew the data. However, statistical analyses indicated no differences in the distribution of the number of years of compensatory education services to the sampled groups of student in grades K through 3, as well as grades K through 5, across all types of pullout settings. The implication from this analysis is that the distribution of compensatory education services to students in the samples would not have an effect on other analyses. (See Tables A, B, C, and D in the Appendix).

Other analyses included comparing a group's absences prior to grade 4 to their absences in grades 4 and 5. Similar comparisons were made for overall grade point average, citizenship, grade point average for reading, and grade point average for mathematics. Table 2 presents a summary of these comparisons.

Table 2

Summary of Two-Tailed Probabilities for Paired Samples Comparisons Using Grades 1, 2, and 3 as a Premeasure and Grades 4 and 5 as a Postmeasure

	Regular Classroom		Non-Machince		Machine		Reg + Non Machine		Reg + Machine	
Variable	R	M	R	M	R	M	R	M	R	M
Absences	.49	.05*	.13	.06	.08	.00*	.04*	.05*	.00*	.05
Overall GPA	.77	.46	.76	.36	.87	.19	.24	.50	.04*	.06
Citizenship	.02*	.93	.09	.84	.02*	.01*	.75	.22	.90	.13
Read GPA	.79	-	.70	-	.43	-	.80	-	.11	-
Math GPA	-	.31	-	.39	-	.14	-	.41	-	.02#

* = significant difference in favor of improvement
\# = significant difference in favor of retrogression

One way analyses of variance were conducted on grade 4 and on grade 5 ABCS scores to assess whether better student achievement performance could be associated with a particular type of instructonal setting. Table 3 indicates the following:

1. there were no significant differences found among the means for the grade 4 ABCS reading and mathematics scores for the reading types of pullout programs, and

2. for the mathematics types of pullout programs, pupils in the regular classroom approach perform significantly better on the grade 5 ABCS mathematics test than both the group receiving remediation in machine rooms and the group using a combination of regular classroom plus a machine room setting.

Table 3

Analyses of Variance Summary
ABCS Scores Versus Pullout Programs

	Grade 4		Grade 5	
	F-ratio	F-prob	F-ratio	F-prob
Reading Pullout				
ABCS Read	.71	.59	2.26	.07
Math Pullout				
ABCS Math	1.92	.11	5.66	.05*

*Significant differences existed between
(1) regular classroom and machine room settings, and
(2) regular classroom and combination of regular classroom and machine room settings.

Finally, two Tables, 4 and 5, summarize the means of variables by type of pullout program. Also included in the tables are the ranks of the means.

Findings and Conclusions

1. Data indicate that there are no overwhelming statistical differences in favor of any particular approach for providing remedial instruction to Chapter 1 targeted students.

2. On the other hand, a review of the rankings of the means of the measures, as presented in Table 4 and Table 5, suggests that two of these approaches may have advantages. Two settings, the regular classroom and the machine room, monopolize the highest rankings of 1 and 2 on nearly all variables. Under the assumption that schools have been using the same instructional setting over a period of several years, then the rankings could be construed as being representative of the tenor of the Chapter 1 instructional setting impact on Chapter 1 students. Research also supports the regular classroom setting. Heterogeneous grouping has been found to be superior to homogeneous grouping and beneficial to both low achievers as well as high achievers.

3. The findings of no significant differences among the various settings may also have a positive aspect. If in reality the type of setting causes no differential impact on student achievement, then cost becomes a factor. Hence, the more expensive types of approaches could be elimated in favor of those that are less costly.

Caveats

As with any educational research the reader should be alert to any caveats. There is always the possibility that one or more of the samples were not truly representative of their group. Under such circumstances, references about the population would be erroneous. The researcher's assumption that schools might not have recently changed their settings for the provision of Chapter 1 instruction could also be false.

Even though the classification of schools appears to be clear-cut, at least two sources of confounding data are possible. One could be a lack of clear understanding between the interviewer and the interviewee at the time the instructional setting was being discussed. Second, the instructional setting and approach may not be discrete or consistently fit the defined model. Therefore, results may be a function of factors not taken into account, rather than a function of the setting for remedial instruction.

Evaluation and Testing Department
February, 1986

Table 4

Means of Various Variables and
Their Ranks By Type of
Pullout Reading Program

Variable	Regular Class N=13		Nonmachine Room N=23		Machine Room N=20		Reg + Non Mach Room N=16		Reg + Mach Room N=24	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Gr 1-3 Math GPA	2.1	1	1.8	3	2.1	1	1.8	3	1.8	3
Gr 4-5 Math GPA	2.1	1	2.0	3	2.1	1	1.5	5	2.0	3
Gr 1-3 Read GPA	2.1	2	1.6	4	2.3	1	1.6	4	1.8	3
Gr 4-5 Read GPA	2.2	2	1.6	4	2.5	1	1.6	4	2.0	3
Gr 1-3 Overall GPA	2.1	2	1.7	4	2.2	1	1.7	4	1.8	3
Gr 4-5 Overall GPA	2.2	2	1.8	4	2.3	1	1.5	5	2.0	3
Gr 1-3 Absences	19.1	5	11.7	1	12.3	2	13.8	3	17.4	4
Gr 4-5 Absences	17.5	5	9.1	2	9.8	3	8.9	1	11.5	4
Gr 1 CAT Read	12.6	2	10.6	4	15.5	1	12.3	3	10.1	5
Gr 2 CAT Read	12.2	3	10.7	5	16.0	1	13.1	2	12.0	4
Gr 3 CAT Read	18.7	2	17.3	5	22.0	1	17.6	4	17.8	3
Gr 4 ABCS Read	31.1	1	26.5	4	28.0	2	25.7	5	28.0	2
Gr 5 ABCS Read	32.3	1	26.0	5	32.1	2	28.8	4	32.1	2
Gr 1 CAT Math	40.8	3	38.1	4	44.1	1	40.9	2	31.6	5
Gr 2 CAT Math	47.5	3	46.7	4	56.0	1	47.8	2	40.4	5
Gr 3 CAT Math	44.2	3	44.0	4	51.9	2	43.3	5	52.8	1
Gr 4 ABCS Math	22.7	3	20.6	4	25.0	1	19.7	5	24.0	2
Gr 5 ABCS Math	25.3	2	20.9	4	26.0	1	20.1	5	24.4	3
Yrs of A3 and C1	4.7	1	7.0	5	4.7	1	6.5	3	6.7	4
Gr 1-3 Citizenship	1.7	1	2.0	3	1.8	2	2.1	5	2.0	3
Gr 4-5 Citizenship	1.5	1	2.1	5	1.5	1	2.0	3	2.0	3

Table 5

Means of Various Variables and
Their Ranks by Type of
Pullout Mathematics Program

Variable	Regular Class N=17 Mean	Rank	Nonmachine Room N=18 Mean	Rank	Machine Room N=22 Mean	Rank	Reg + Non Mach Room N=19 Mean	Rank	Reg + Mach Room N=16 Mean	Rank
Gr 1-3 Math GPA	2.2	1	1.8	2	1.8	2	1.6	4	1.5	5
Gr 4-5 Math GPA	1.9	3	2.0	2	2.1	1	1.8	4	0.9	5
Gr 1-3 Read GPA	2.1	1	1.6	3	2.0	2	1.6	3	1.6	3
Gr 4-5 Read GPA	2.1	1	1.8	3	2.0	2	1.7	4	1.6	5
Gr 1-3 Overall GPA	2.1	1	1.7	3	1.9	2	1.6	4	1.5	5
Gr 4-5 Overall GPA	2.0	2	1.9	3	2.1	1	1.7	4	1.3	5
Gr 1-3 Absences	11.1	1	16.6	3	13.8	2	16.6	3	17.5	5
Gr 4-5 Absences	7.1	1	12.1	3	9.2	2	12.6	5	12.5	4
Gr 1 CAT Read	12.3	2	10.1	5	11.6	3	10.8	4	14.1	1
Gr 2 CAT Read	14.6	1	10.2	4	11.6	2	11.1	3	8.9	5
Gr 3 CAT Read	20.1	1	17.1	4	20.0	2	17.5	3	14.8	5
Gr 4 ABCS Read	29.6	3	24.5	5	29.9	1	29.8	2	24.8	4
Gr 5 ABCS Read	35.5	1	27.7	4	30.5	2	28.8	3	26.9	5
Gr 1 CAT Math	40.5	2	37.6	5	43.3	1	38.5	3	37.8	4
Gr 2 CAT Math	49.1	2	44.2	4	48.7	3	49.9	1	41.0	5
Gr 3 CAT Math	56.8	1	47.3	5	52.6	2	49.8	3	47.6	4
Gr 4 ABCS Math	26.7	1	21.9	3	24.8	2	21.9	3	20.4	5
Gr 5 ABCS Math	28.8	1	25.9	2	21.6	4	24.7	3	18.8	5
Yrs of A3 and C1	4.8	1	6.8	2	6.9	3	6.8	2	7.3	5
Gr 1-3 Citizenship	2.0	2	1.9	1	2.0	2	2.0	2	1.8	5
Gr 4-5 Citizenship	2.0	3	1.9	2	1.7	1	2.2	5	2.0	3

APPENDIX

Table A

Crosstabulation of Number of Years
of Compensatory Education in Grades
Kindergarten to 3 by Type of Reading Program

Number of Years of Service	Regular Classroom	Non-Machine	Machine	Reg + Non Machine	Reg + Machine
0-1 (Low)	6	4	13	3	5
2-4 (Medium)	4	8	10	8	9
5-8 (High)	3	11	4	5	10

Chi-square = 12.8
df = 8
Probability = 0.12

Table B

Crosstabulation of Number of Years
of Compensatory Education in Grades
Kindergarten to 3 by Type of Mathematics Program

Number of Years of Service	Regular Classroom	Non-Machine	Machine	Reg + Non Machine	Reg + Machine
0-1 (Low)	4	3	2	3	3
2-4 (Medium)	12	9	14	8	7
5-8 (High)	1	6	10	8	7

Chi-square = 8.6
df = 8
Probability = 0.38

Table C

Crosstabulation of Number of Years
of Compensatory Education in Grades
Kindergarten to 5 by Type of Reading Program

Number of Years of Service	Regular Classroom	Non-Machine	Machine	Reg + Non Machine	Reg + Machine
0-4 (Low)	6	7	13	3	7
5-7 (Medium)	5	4	10	8	7
8-12 (High)	2	12	4	5	10

Chi-square = 14.1
df = 8
Probability = 0.08

Table D

Crosstabulation of Number of Years
of Compensatory Education in Grades
Kindergarten to 5 by Type of Mathematics Program

Number of Years of Service	Regular Classroom	Non-Machine	Machine	Reg + Non Machine	Reg + Machine
0-4 (Low)	8	5	5	3	3
5-7 (Medium)	8	4	10	8	4
8-12 (High)	1	9	11	8	10

Chi-square = 14.2
df = 8
Probability = 0.08